aceae. In their class Heterokontae the first 'series' purposely includes flagellate animals (*Chloramoeba, Vacuolaria, Chlorosaccus* and *Chlorobotrys*) 'since they represent the primitive organisms possessing Heterokontan characters, from which the next two series have been derived.' The series Confervales includes such organisms as *Chlorothecium, Mischococcus, Ophiocytium, Conferva* (of Lagerheim) and *Botrydium.* These authors include *Vaucheria* in a third series, thus widely separating this genus from other Siphonales (in the class Isokontae). This separation is not followed by either West or Oltmanns, who recognize the class Heterokontae as including the Confervales only.

On looking over the outlines of these four systems, that of Blackman and Tansley strikes one as quite the most radical. In order to be understood the position of the authors as stated in their introduction must be borne in mind, as follows: "The most fundamental of these modern conceptions is that which proposes to regard the Algae as consisting of a number of natural classes, phylogenetically independent of one another, more or less parallel in evolution, and each derived separately from the Flagellata. * * * These parallel classes are generally to be distinguished from one another by cytological characters, and more especially by differences in the organization of the zoospore, which is held to retain, throughout each class, most of the characteristics of its primitive flagellate ancestor. The most conspicuous of these differentiating characteristics of the zoospore are the nature of the assimilatory pigments, the character of the chromatophore, and the arrangement of the flagella."

If we exclude the Diatoms and Charales it is found that Engler recognizes 27 families of green algae; Blackman and Tansley, 44; West, 28, and Oltmanns, 37. Clearly, the algologists are no more agreed as to the limits of the families of the green algae than they are as to other points in the classification of these organisms.

THE CUP-FUNGI OF IOWA.

IN a recent number of the bulletins from the Laboratories of Natural History of the State University of Iowa (No. 4, Vol. V.) F. J. Seaver publishes a valuable paper on the 'Discomycetes of Eastern Iowa.' In preparation for this work the author collected 'nearly one hundred species,' of which fifty are now described, the remaining being 'retained for further study,' in the hope that they may appear in a later paper. The species described are all old, the author having wisely refrained from adding new species. The books in which each species is described are cited in connection with each description, the lists resembling lists of synonyms, which they actually are in some cases. The descriptions and notes are good, and the plates (twenty-five in number) are excellent.

SEAWEED STUDIES.

PROFESSOR DOCTOR J. J. WOLFE contributes a cytological study of the red seaweed *Nemalion* to the October number of the *Annals of Botany,* accompanying his paper with seventy-five well-drawn figures. In addition to working out very clearly the structure of the complex chromatophore he finds reasons for concluding 'that *Nemalion* presents the essentials of an antithetic alternation of generations, and that the cystocarp is, therefore, the homologue of the sporophyte in higher plants.'

SARGENT'S MANUAL OF TREES.

THIS important book has just appeared from the press, and there has not yet been time for the preparation of a complete review, which must be deferred until a later issue. It need only be said now that in a neat volume of 826 pages the author has described and figured about 642 species and varieties, which occur in North America north of Mexico. For the first time the American botanist who is especially interested in trees has a portable manual which he can use in every part of the country.

CHARLES E. BESSEY.
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NATIONAL ACADEMY OF SCIENCES.

THE annual stated session of the National Academy of Sciences was held in Washington April 18–20, 1905.

The following members were present during

the session: Messrs. Agassiz, Allen, Becker, Billings, Boas, Boss, Brewer, Brooks, Brush, Cattell, Chittenden, Councilman, Dall, Davis, Dutton, Emmons, Gill, Hague, Langley, Merriam, Mitchell, Morse, Newcomb, Nichols, Osborn, Peirce, Putnam, Remsen, Walcott, Webster, Welch, Wells, White, Wood and Woodward.

The following papers were presented:

Edward L. Nichols: 'The Mechanical Equivalent of Light.'

Dr. H. C. Wood and Dr. Daniel M. Hoyt: 'The Effects of Alcohol upon the Circulation.'

Alexander Agassiz: 'The Expedition of the U. S. Fish Commission Steamer *Albatross*, in charge of Alexander Agassiz, in the Eastern Pacific, Lieut. Commander L. M. Garrett, commanding.'

William M. Davis: 'Resequent Valleys.'

William M. Davis: 'The Geographical Cycle in an Arid Climate.'

W. W. Campbell: 'A Catalogue of Spectroscopic Binary Stars.'

C. D. Perrine (introduced by W. W. Campbell): 'Discovery of the Sixth and Seventh Satellites of Jupiter and their Preliminary Orbits.'

W. K. Brooks: 'The Axis of Symmetry of the Ovarian Egg of the Oysters.'

John C. Branner, of Stanford University; William H. Holmes, of the Bureau of American Ethnology; William H. Howell, of Johns Hopkins University; Arthur A. Noyes, of the Massachusetts Institute of Technology, and Michael I. Pupin, of Columbia University, were elected members of the academy.

M. Henri Becquerel, of Paris, and Professor Paul von Groth, of Munich, were elected foreign associates.

SCIENTIFIC NOTES AND NEWS.

Professor E. B. Frost has been appointed director of the Yerkes Observatory by the trustees of the University of Chicago, in succession to Professor G. E. Hale, who gives his whole time to the establishment of the new Solar Observatory of the Carnegie Institution at Mt. Wilson, Cal.

Dr. William Osler has been elected an honorary fellow of the Royal College of Physicians of Ireland.

The Baltimore correspondent of the N. Y. *Evening Post* states that at the request of Miss Mary E. Garrett, the benefactress of the medical department of Johns Hopkins University, Dr. W. H. Welch, Dr. W. S. Halstead and Dr. H. A. Kelly will meet Dr. William Osler in London in June, to sit for a group portrait to be painted by John S. Sargent.

The Vienna Laryngological Society appointed Señor Manuel Garcia, on the occasion of his one hundredth birthday, to be an honorary member of the society. Professor Chiari, the president, handed the diploma of honorary membership to Señor Garcia.

Professor John F. Jameson, head of the department of history at the University of Chicago, has been offered the post of director of the Bureau of Historical Research in the Carnegie Institution, Washington, D. C. This position is vacant through the return of Professor J. Lawrence Laughlin to the University of Michigan.

Professor Bashford Dean, of Columbia University, plans to spend several months in Japan, where he will continue his studies on the development of the ancient sharks, Cestracion and Chlamydoselachus. He will be the guest of the Imperial University of Tokyo.

Professor H. S. Graves, director of the Yale School of Forestry, who has been in India, is expected to return next month.

Dr. Albert F. Woods, of the Bureau of Plant Industry, has been delegated to attend the Second International Botanical Congress, to be held at Vienna in June, and the International Congress of Agriculture at Rome.

Dr. D. H. Campbell, of Stanford University, will spend next year in an extensive trip through Europe, Africa and Asia. He expects to attend the International Botanical Congress at Vienna and the meeting of the British Association at Cape Town, and hopes to be able to make botanical investigations in the newly opened regions about the Victoria and Zambesi falls. He will then visit Bombay and Ceylon and will spend some time at the Botanical Gardens at Buitenzorg, Java, returning